

REMARKS

Claims 1-2, 4-9 and 11-20 will be pending upon entry of present amendments. Claims 1-2 and 9 have been amended. Claims 3 and 10 have been cancelled. New claims 15-20 have been added. No new matter has been introduced.

A Supplemental Information Disclosure Statement (IDS) is enclosed, listing two new European patents, FR-A-1247931 and DE-A-41 12 701. Copies of these prior art documents are enclosed for the Examiner's convenience.

35 USC 112 Rejections

The Examiner rejected claim 2 for indefiniteness. Claim 2 has been amended to recite limitations with definiteness.

35 USC 103(a) Rejections

The Examiner has rejected claims 1-5, 9-10 and 14 as being unpatentable over Nagarwalla et al (US 4,832,108, "Nagarwalla" hereinafter) in view of Lapeus et al (US 6,520,244, "Lapeus" hereinafter). Amended claim 1 recites, *inter alia*, "... at least one duct which outputs into said moulding cavity along a radial direction with respect to said principal direction." Nagarwalla does not teach or suggest a duct which outputs into the moulding cavity along a radial direction. Furthermore, Lapeus does not cure the deficiencies of Nagarwalla. Nagarwalla teaches "This upward movement brings gas pipe connection 282 on the gassing manifold into sealing contact with fixed gas supply pipe 284 (see Figs. 36-37) ... Catalyzing gas is then introduced through these connections into the gassing manifold and ejector plate 32 and into the ocre boxes." Nagarwalla, col. 12, lines 45-50. As shown in Figures 1-3 in Nagarwalla, this upward movement is in parallel with and along the post 12. Nagarwalla further states "... stacked components including bottom stool 26, lower core box or drag 28, upper core box or cope 30, gassing manifold and ejector plate 32 ..." Nagarwalla, col. 4, lines 14-16. So, gas is introduced into the core cavity along the principal (vertical) direction along post 12. Therefore,

the combination of Nagarwalla and Lapeus do not teach or suggest a duct which outputs into moulding cavity along a radial direction.

In the arrangement contemplated in Lapeus, the first supply of curing agent 12 and 110 (this applies both to the prior art of Figure 1 and to the invention of Figure 2) is directly to and into the core cavity 14, 140 containing the foundry core 15, 145. Conversely, the secondary supply of curing agent 160 taught by Lapeus is via an intake port 180 which does not give out into to the core cavity 140, but rather into the core box tool 120. Similarly, the exhaust ports 20, 150 of Lapeus (this again applies both to the prior art of Figure 1 and to the invention of Figure 2) give out into the core box tool 16, 120.

This core box tool is presumably gas-permeable as confirmed by the positive teaching of Lapeus to the effect that the intake port is positioned *remotely* from the core cavity 140. Lapeus, col. 2, lines 66-67. The teaching of Lapeus thus goes in the direction of primarily relying on the nature and characteristics of the material comprising the core box tool 120 in order to achieve the desired effect of having a secondary flow of curing gas through the foundry core in a direction non-coincidental with the direction of the primary flow of the curing gas. The arrangement of Lapeus would therefore fail to provide any means of tailoring the directions of the secondary flow of the curing gas, for example, to the specific shape and characteristics of a given type of foundry core being formed. Additionally, it is reasonable to expect that in the arrangement of Lapeus the secondary supply of the curing agent 160 will end up being isodynamically disturbed within the core box tool material, thus losing much of its directional nature.

In contrast, the present embodiment both the input and the output ducts intended to give rise to a binder flow directed at least in part in a radial direction with respect to the principal direction of the mould do output to the moulding cavity 6. This arrangement thus ensures that at least a part of the binder will flow in a radial direction with respect to the principal direction. Therefore, currently amended claims 1-2 and 9 and claims 3-5, 9-10 and 14 are clearly allowable.

The Examiner may perhaps attempt to argue that conventional, single flow direction arrangements exist in the art where both inflow and outflow ducts give out into the moulding cavity, whereby the person of skill in the art would be directed in an obvious manner to apply such a configuration to the general, plural flow direction arrangement of Lapeus. This reasoning would however be dictated by inadmissible hindsight and, more to the point, would be contradicted by the positive teaching of Lapeus at col. 2, lines 66, 67 to the effect that the intake port is positioned remotely from the core cavity 140. Consequently, rather than making this choice obvious, Lapeus clearly teaches against having intakes ports positioned to give put into the mould cavity.

Claim 9 has been amended to recite, *inter alia*, "...at least one duct, which gives out into the aforesaid moulding cavity along a direction parallel to the aforesaid principal direction, and at least one duct, which gives out into the aforesaid moulding cavity along a radial direction ..." Nagarwalla in view of Lapeus and McKibben et al. (US Patent 6,505,671, "McKibben" hereinafter) does not teach or suggest one duct outputting parallel to the principal direction and one duct outputting along a radial direction. In addition to the reasons presented above with regard to Lapeus, McKibben suggests gas flow in a principal direction only, as shown in Figure 1. McKibben teaches "... the casting mold 74 includes a first wall 100 having a plurality of feed gates 105 ... a second wall 110 having a plurality of second feed gates 115 ..." Figure 1 shows the walls and feed gates being arranged in one principal direction from top to bottom. Therefore, claim 9 and claims 11-13 which depend from claim 9 are clearly allowable.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

A handwritten signature in black ink, appearing to read "David V. Carlson", is written over a horizontal line.

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Enclosure:

Postcard
Supplemental Information Disclosure Statement
Form PTO-1449
Cited References (2)

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